

Name: _____

Date: _____

A2 CC 1: Some Review for Exam4 Quarter 2

This review sheet is not comprehensive. Please look over your old exams, homework assignments, and notes to prepare fully spending time specifically on questions that you struggled with on those assessments. **PLEASE DO ALL WORK ON SEPARATE LINED PAPER. Due: Wednesday, January 17th**

For Questions #1-5 perform the indicated operation(s) and express your answer in simplest form

1. $\frac{h-20}{h^2-16} + \frac{2}{h-4}$

4. $\frac{4}{x^2+4x-5} - \frac{3}{x^2-1}$

2. $\frac{2}{x-3} + \frac{4}{3-x}$

5. $\frac{a-2b}{a^2b} - \frac{a+b}{ab^2}$

3. $\frac{3}{x^2-16} + \frac{2}{x^2-4x}$

For Questions #6-7 write the given expression as a single rational expression

6. $\frac{a^{-1}-b^{-1}}{b^{-2}-a^{-2}}$

7. $\frac{1-\frac{1}{x}}{x-2+\frac{1}{x}}$

For Questions #8-12 solve for all values of x

8. $\frac{1}{2a} - \frac{9}{a^2+6a} = \frac{2-a}{2a+12}$

9. $\frac{2x+3}{6} - \frac{2x+3}{3} = \frac{1}{2}$

10. $\frac{1}{x+3} - \frac{2}{3-x} = \frac{4}{x^2-9}$

11. $2x^2 = 13x - 15$ (express your answer in simplest form)

12. $x^2 - 6x = -21$ (express your answer in simplest $a+bi$ form)

13. Solve by **completing the square:** $2x^2 + 12x + 6 = 0$

14. Solve using the **Quadratic Formula:** $2x^2 = 7x - 4$

Questions #15-17 Multiple Choice

15. The roots of the equation $2x^2 + 3x + 2 = 0$ are

- a. Rational and Equal
- b. Imaginary
- c. Rational and Unequal
- d. Irrational and Unequal

16. The roots of the equation $3x^2 - 12 = 0$ are

- a. Real and Irrational
- b. Real, Rational, and Equal
- c. Imaginary
- d. Real, Rational, and Unequal

17. A solution of the equation $2y^2 + 3y = -2$ is

- a. $-\frac{3}{4} + \frac{7}{4}i$
- b. $-\frac{3}{4} + \frac{i\sqrt{7}}{4}$
- c. $\frac{1}{2}$
- d. $-\frac{3}{4} + \frac{\sqrt{7}}{4}$

For #18-19, perform the indicated operation and express the answers in simplest form

18. $\frac{x^2 - 3x}{2x^2 + x - 6} \div \frac{x^2 - 5x + 6}{x^2 - 4}$

19. $\frac{x^2 - 9}{x^2 - 5x} \cdot \frac{5x - x^2}{x^2 - x - 12} \div \frac{x - 4}{x^2 - 8x + 16}$

For #20-25, Factor completely

20. $3x^2 - 12$

21. $x^3 - x^2 - 6x$

22. $4x^2 - 6x - 4$

23. $5a^2 + 14a - 3$

24. $a^3 - 2a^2 + a - 2$

25. $x^2 + ax + bx + ab$

For #26-29, Simplify

26. $\frac{5x^2 - 15x}{27x - 3x^3}$

27. $\frac{x^2 - 7x - 30}{x^2 - 5x - 24}$

28. $\frac{36x^3}{-42x^2}$

29. $\frac{y^2 + 3y - 28}{y^2 - 49}$

For #30-33 Identify the value(s) of the variable, if any, for which the fraction is undefined

30. $\frac{5}{3 - x}$

31. $\frac{10}{x^2 - 25}$

32. $\frac{x^2 - 49}{2x^2 - 3x}$

33. $\frac{x^2 - x - 2}{x^3 + x^2 - 2x}$

For #34-37 Solve for all values of x.

34. $x - \sqrt{9 - 2x} = 3$

35. $\sqrt{2x + 1} - 1 = 4$

36. $2\sqrt{2x + 3} + x = 1$

37. $\sqrt{x - 1} + x = 7$

38. Determine the nature of the roots of the equation $3x^2 - 10 = 5x$

39. What value of k would make the roots of the equation $x^2 - 10x + k = 0$ imaginary?

40. Solve $\frac{x^2 - 10x + 25}{x - 3} \leq 0$ and express the solution in set builder and interval notation.

41. Solve $x^2 - 2x < 24$ and express the solution in set builder and interval notation

42. Divide $(x^5 - 5x^4 + 2x^2 - 5)$ by $(x^2 + 2x + 1)$ using Long Division

43. Divide $(3x^3 - 16 + x^3 + 2x^4 - x)$ by $(-4 + x)$ using Long Division